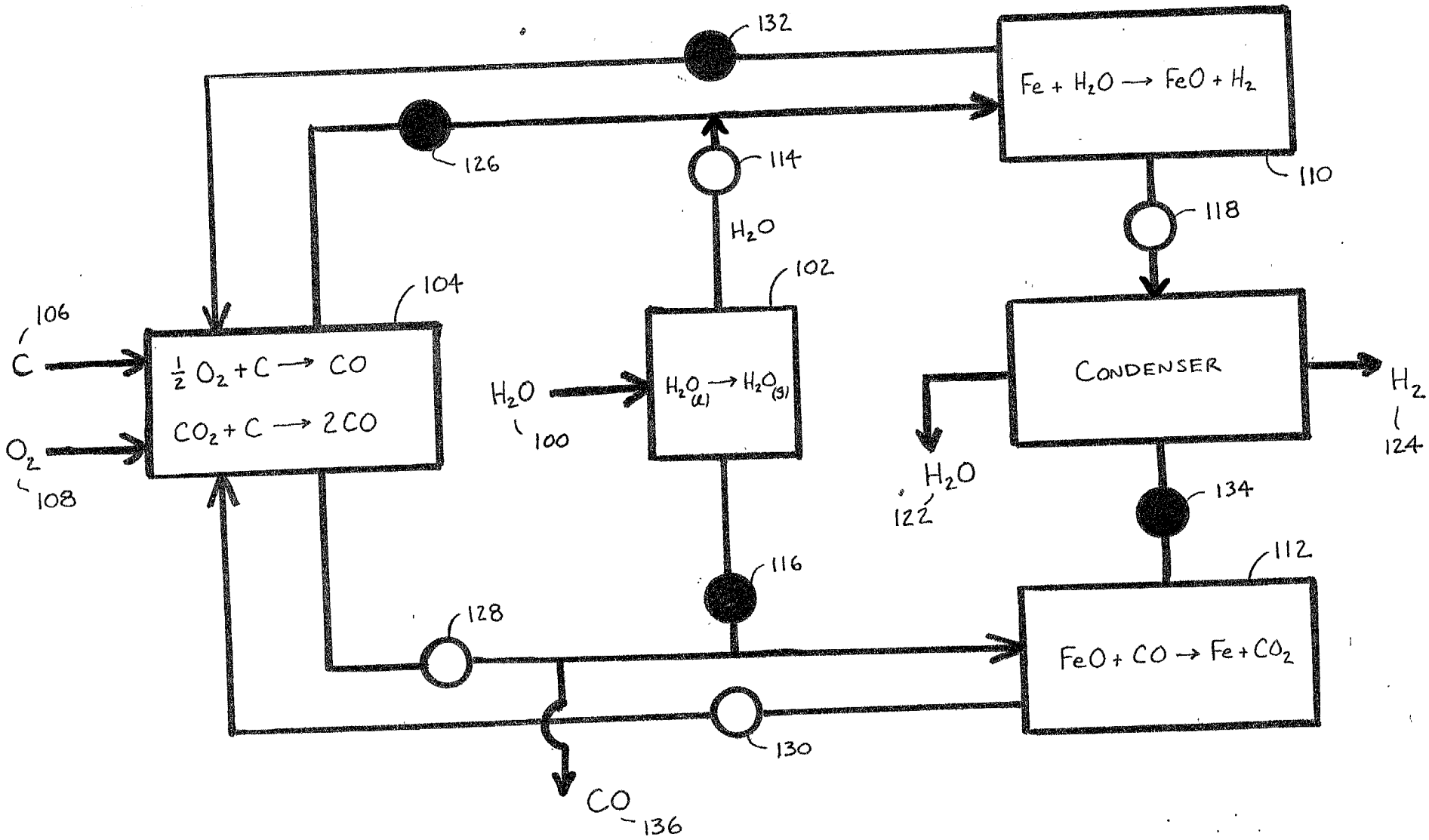
132
Fe + H2O → FeO + H2
126
114
110
118
H2O
102
104
106
C
½ O2 + C → CO
CO2 + C → 2CO
H2O
H2O(l) → H2O(s)
CONDENSER
H2
124
O2
108
100
H2O
122
134
112
116
128
FeO + CO → Fe + CO2
130
CO
136

Fig. 1

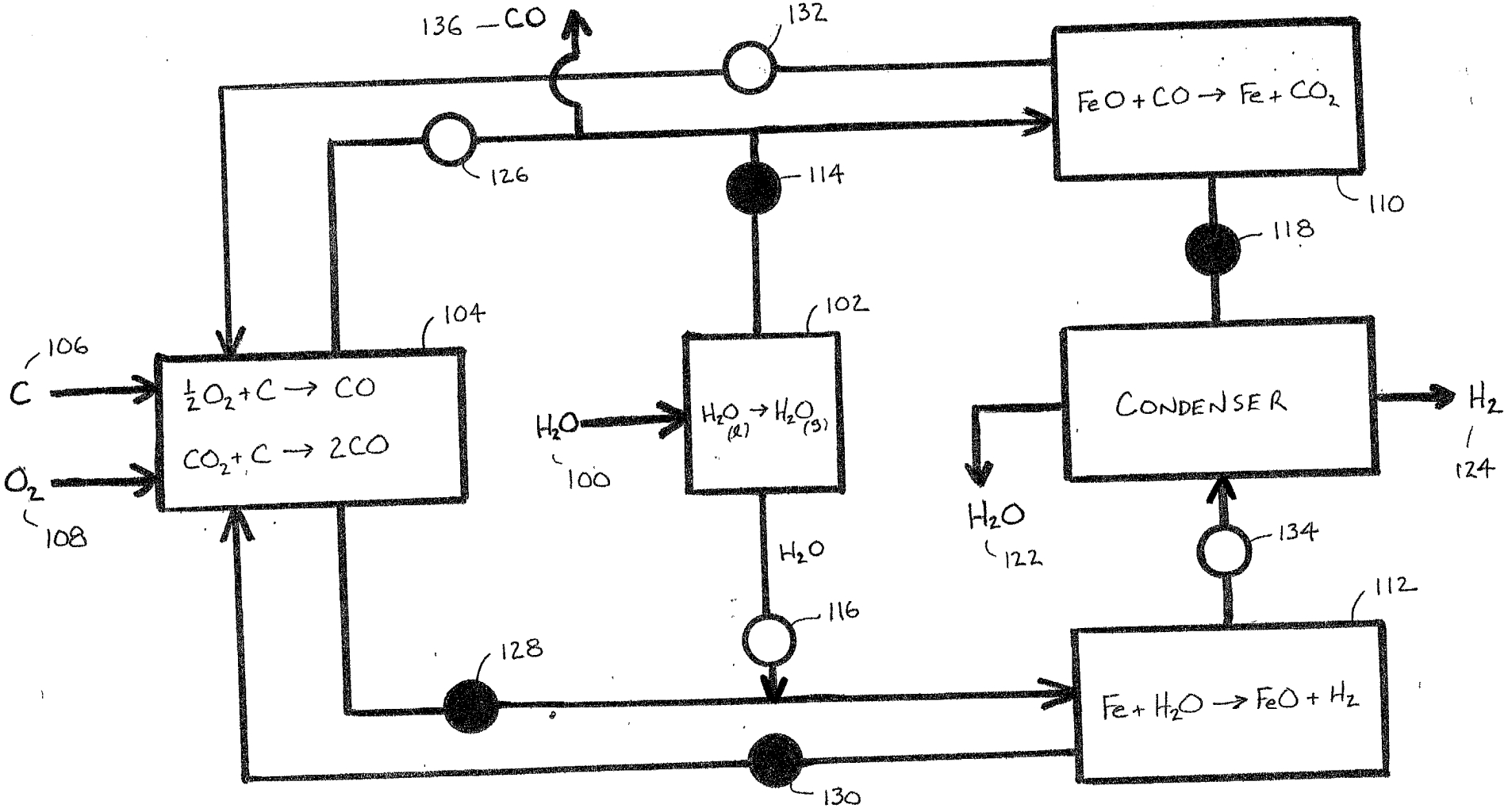
136 — CO
132
126
114
110
118
104
102
106
C
$\frac{1}{2}O_2 + C \rightarrow CO$
$CO_2 + C \rightarrow 2CO$
$H_2O$
$H_2O_{(l)} \rightarrow H_2O_{(s)}$
CONDENSER
$H_2$
124
$O_2$
108
100
$H_2O$
122
134
$H_2O$
112
116
128
$Fe + H_2O \rightarrow FeO + H_2$
130

Fig. 2

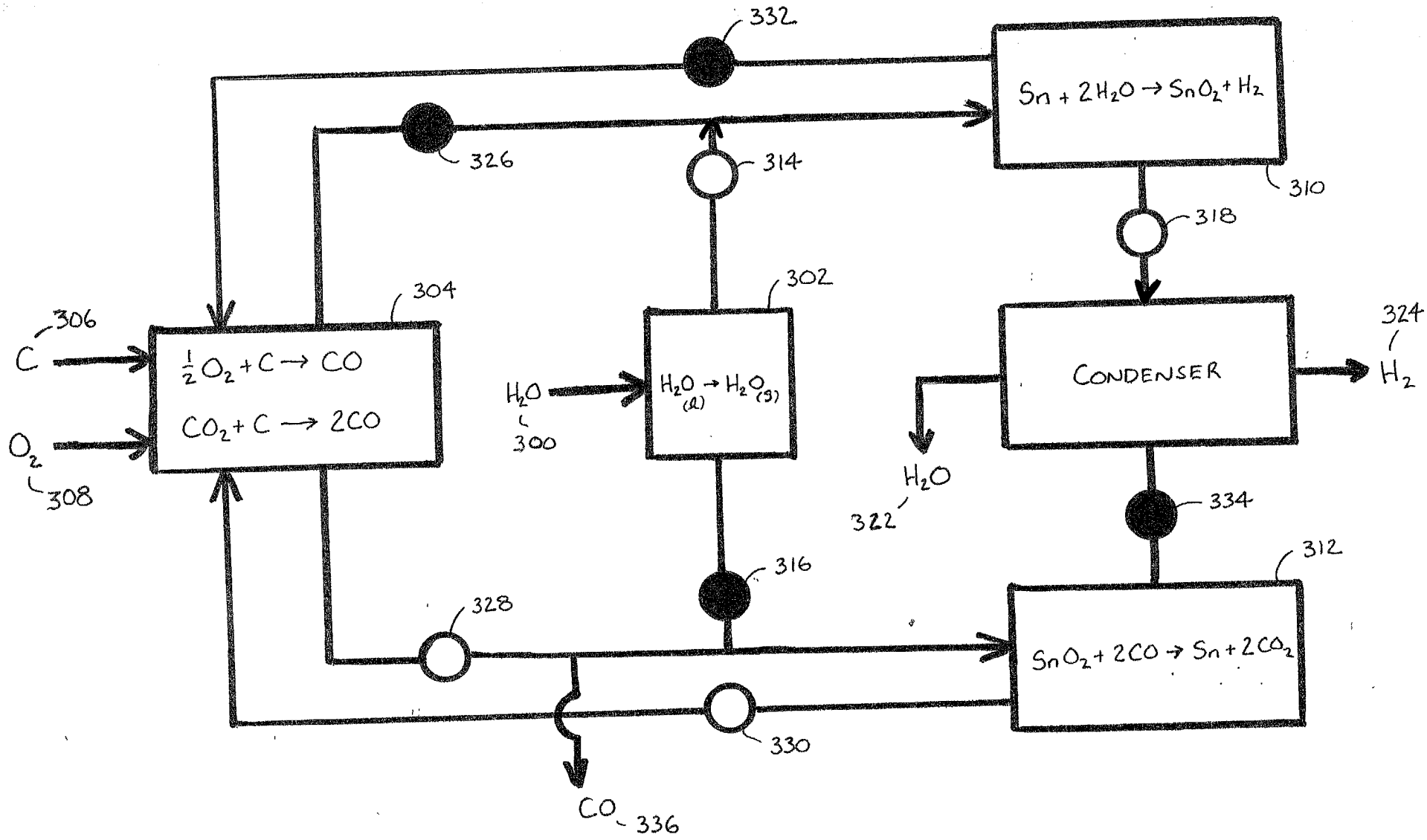
332
$Sn + 2H_2O \rightarrow SnO_2 + H_2$
326
314
310
318
304
302
306
C
$\frac{1}{2}O_2 + C \rightarrow CO$
$CO_2 + C \rightarrow 2CO$
$H_2O$
300
$H_2O_{(l)} \rightarrow H_2O_{(g)}$
CONDENSER
324
$H_2$
$O_2$
308
$H_2O$
322
334
312
316
328
$SnO_2 + 2CO \rightarrow Sn + 2CO_2$
330
CO
336

Fig. 3

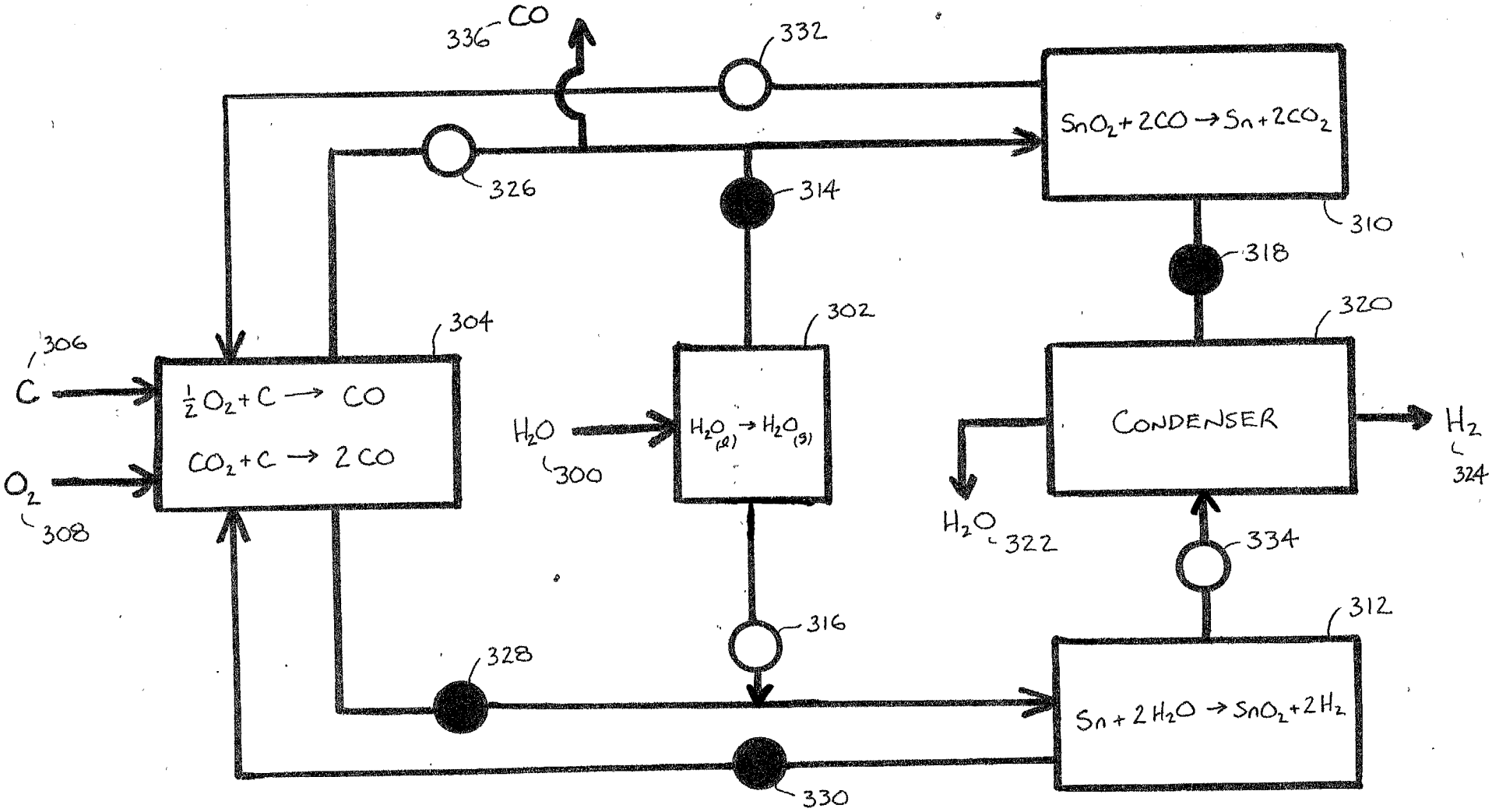
336
CO
332
$SnO_2 + 2CO \rightarrow Sn + 2CO_2$
326
314
310
318
320
304
302
306
C
$\frac{1}{2}O_2 + C \rightarrow CO$
$CO_2 + C \rightarrow 2CO$
$H_2O$
300
$H_2O_{(l)} \rightarrow H_2O_{(s)}$
CONDENSER
$H_2$
324
$O_2$
308
$H_2O$
322
334
312
316
328
$Sn + 2H_2O \rightarrow SnO_2 + 2H_2$
330

Fig. 4

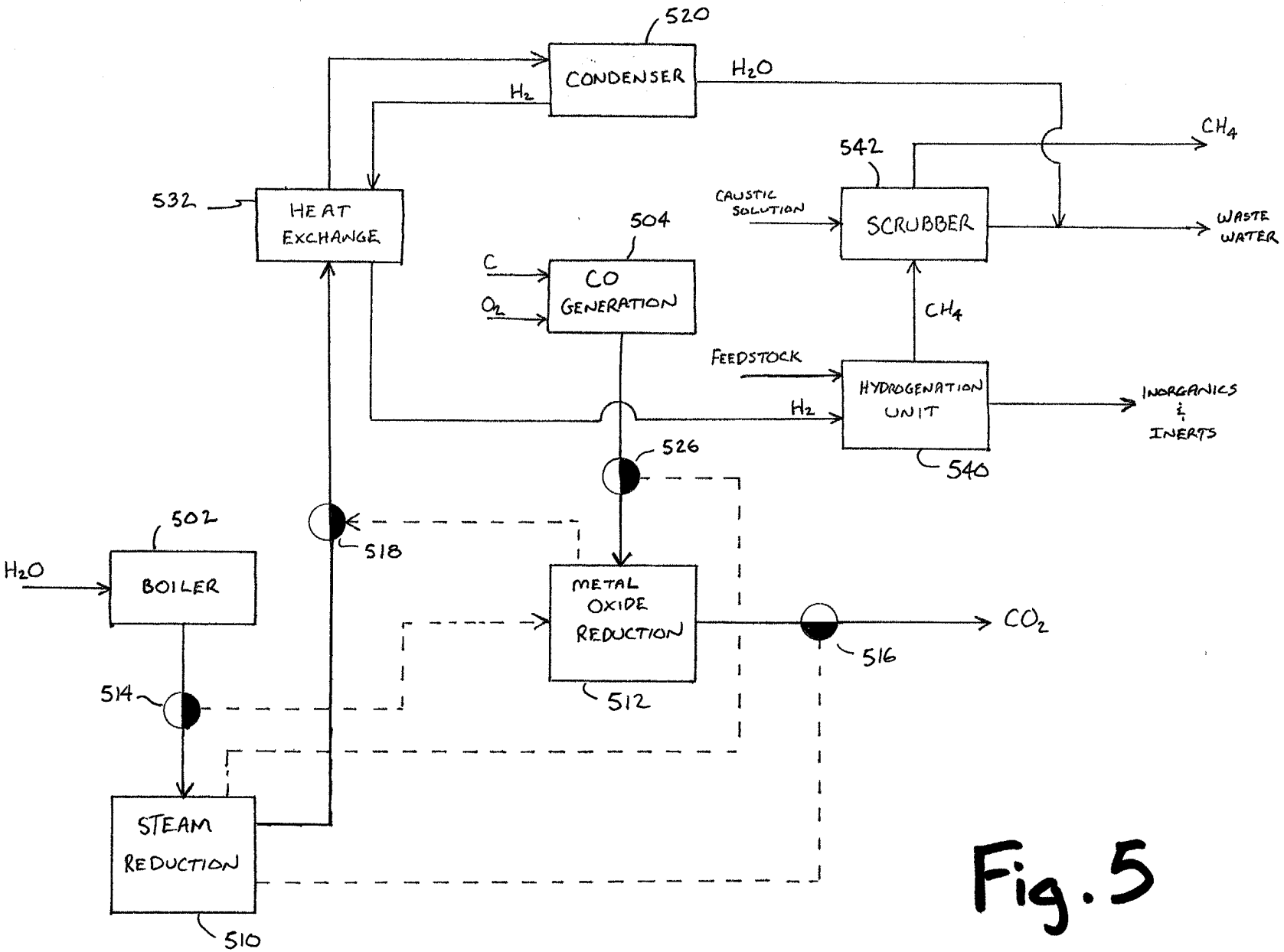
520
CONDENSER
$H_2O$
$H_2$
$CH_4$
542
SCRUBBER
CAUSTIC SOLUTION
WASTE WATER
532
HEAT EXCHANGE
504
CO GENERATION
C
$O_2$
$CH_4$
FEEDSTOCK
HYDROGENATION UNIT
$H_2$
INORGANICS & INERTS
540
526
518
502
$H_2O$
BOILER
METAL OXIDE REDUCTION
$CO_2$
516
514
512
STEAM REDUCTION
510

Fig. 5

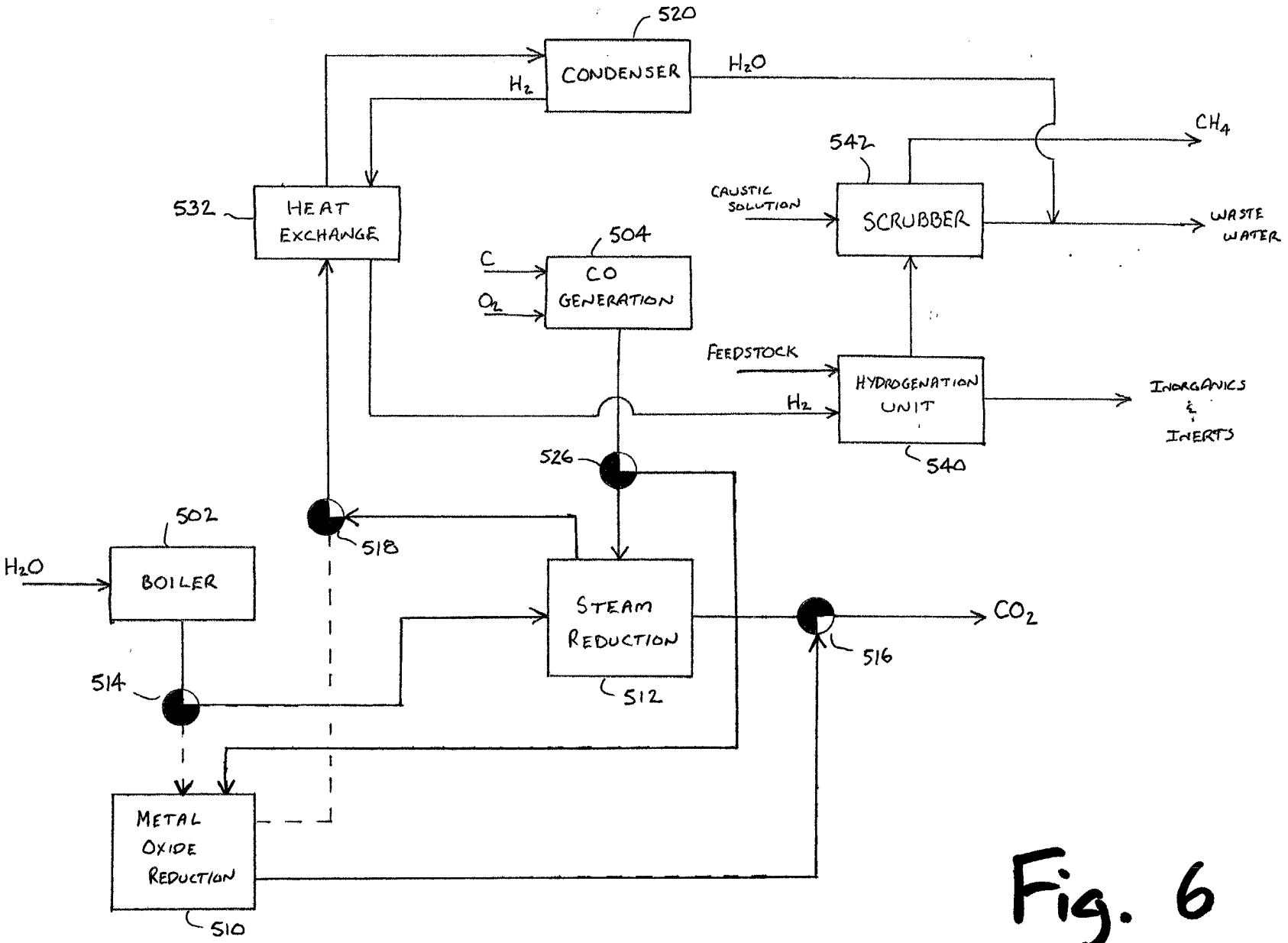
520
CONDENSER
$H_2$
$H_2O$
$CH_4$
542
CAUSTIC SOLUTION
SCRUBBER
WASTE WATER
532
HEAT EXCHANGE
504
C
$O_2$
CO GENERATION
FEEDSTOCK
HYDROGENATION UNIT
$H_2$
INORGANICS & INERTS
540
526
502
518
$H_2O$
BOILER
STEAM REDUCTION
$CO_2$
516
514
512
METAL OXIDE REDUCTION
510

Fig. 6

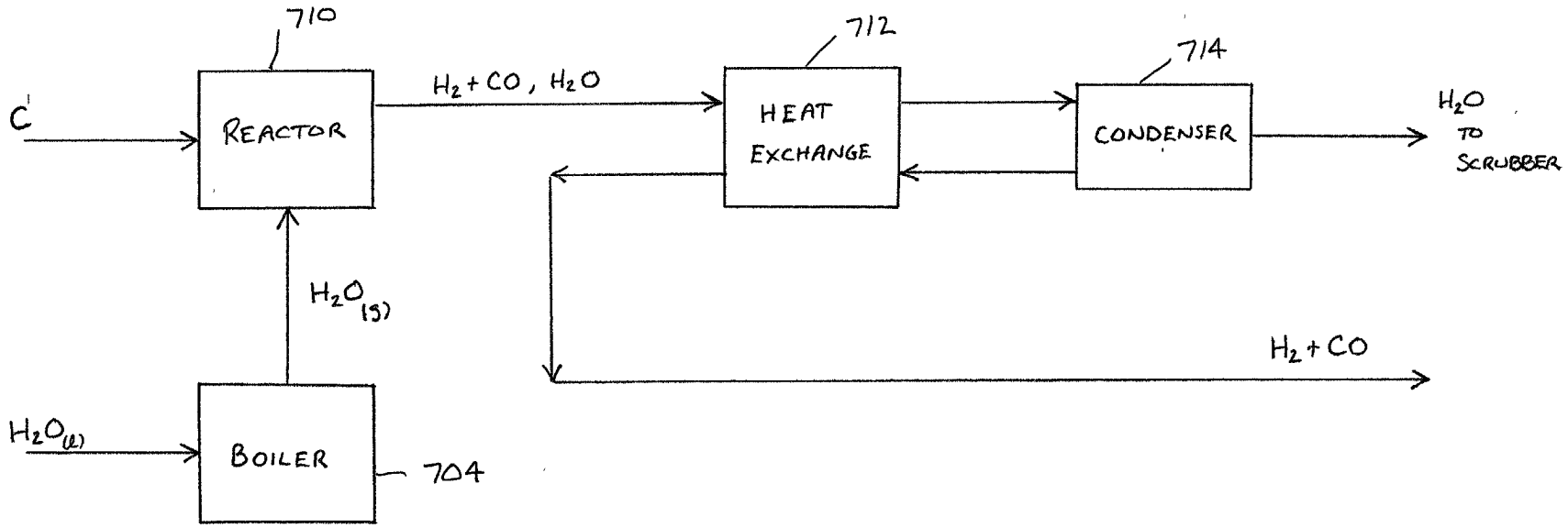
710
712
714
C
REACTOR
$H_2 + CO$, $H_2O$
HEAT EXCHANGE
CONDENSER
$H_2O$ TO SCRUBBER
$H_2O_{(g)}$
$H_2 + CO$
$H_2O_{(l)}$
BOILER
704

Fig. 7

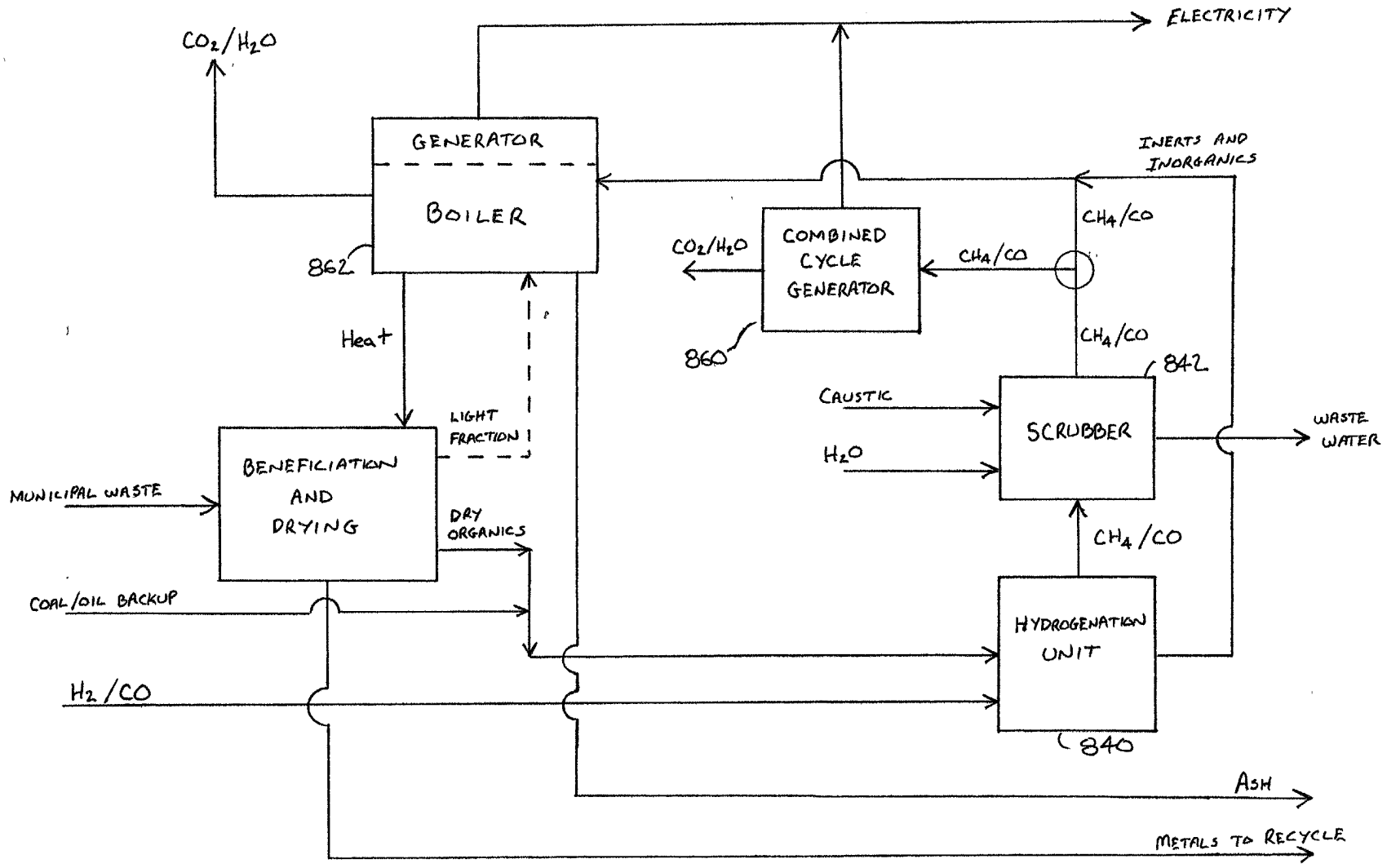
ELECTRICITY
$CO_2/H_2O$
GENERATOR
BOILER
862
INERTS AND INORGANICS
$CH_4/CO$
$CO_2/H_2O$
COMBINED CYCLE GENERATOR
$CH_4/CO$
860
$CH_4/CO$
842
Heat
CAUSTIC
SCRUBBER
WASTE WATER
LIGHT FRACTION
$H_2O$
BENEFICIATION AND DRYING
MUNICIPAL WASTE
DRY ORGANICS
$CH_4/CO$
COAL/OIL BACKUP
HYDROGENATION UNIT
$H_2/CO$
840
ASH
METALS TO RECYCLE

Fig. 8

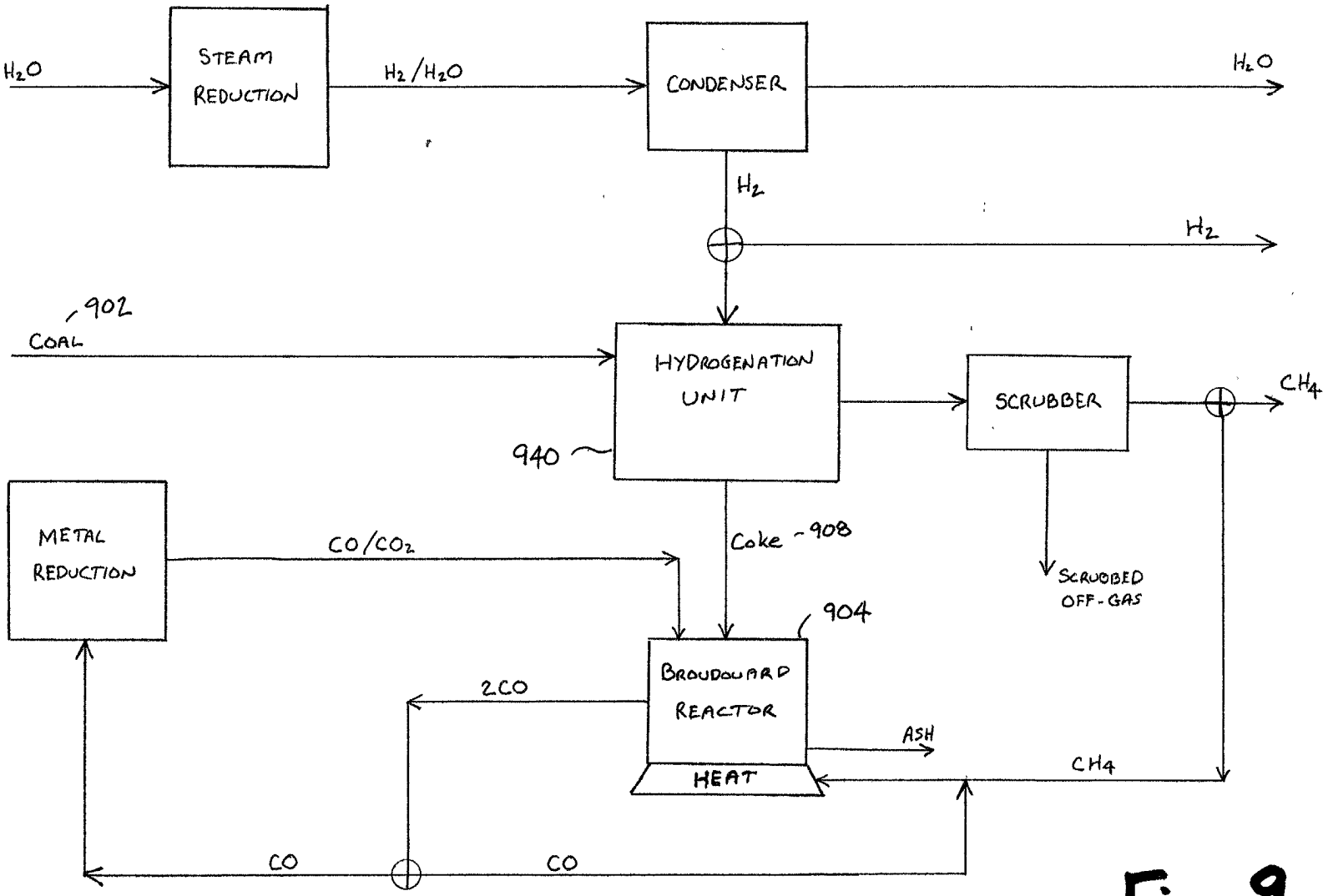
$H_2O$
STEAM REDUCTION
$H_2/H_2O$
CONDENSER
$H_2O$
$H_2$
$H_2$
902
COAL
HYDROGENATION UNIT
940
SCRUBBER
$CH_4$
METAL REDUCTION
$CO/CO_2$
Coke - 908
SCRUBBED OFF-GAS
904
BOUDOUARD REACTOR
2CO
ASH
HEAT
$CH_4$
CO
CO

Fig. 9